EXHIBIT 1

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

<table>
<tr><td>
GESTURE TECHNOLOGY PARTNERS,
LLC,

        Plaintiff
   v.

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA,
INC.
        Defendants.
</td><td>
CASE NO. 2:21-cv-00040-JRG
§ (Lead Case)

CASE NO. 2:21-cv-00041-JRG
§ (Member Case)

JURY TRIAL DEMANDED
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DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS

Plaintiff Gesture Technology Partners, LLC ("GTP") provides the following disclosure of asserted claims and infringement contentions pursuant to P.R. 3-1.

P.R. 3-1(a): Identification of Infringed Claims

Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. ("Defendants" or "Samsung") infringe the following claims of U.S. Patent Nos. 8,194,924 (the "'924 patent"); 7,933,431 (the "'431 patent"); 8,878,949 (the "'949 patent"); and 8,553,079 (the "'079 patent") (collectively, the "Asserted Patents"):

Asserted Patent	Infringed Claims
'924 patent	1-10, 12, and 14
'431 patent	1-4, 6-9, 11-22, 25-28, and 30
'949 patent	1-9, 11-14, and 16-18
'079 patent	1-6, 8-9, 11, 14-15, 19, 21-26, 28, and 30

P.R. 3-1(b): Identification Of Accused Products

The following chart identifies the Accused Products along with specific components found in each Accused Product that form the basis of GTP's infringement contentions against each

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Accused Product. Each Accused Product identified in the below chart infringes each Infringed

Claim of the Asserted Patents, as specified in the above Identification Of Infringed Claims. The

Accused Products include all related software for the hardware components identified in the chart

below, as well as any other hardware and software utilized by the Accused Products that is integral

to either the systems that employ those hardware components or the functionalities detailed in the

attached claim charts.

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
Samsung Galaxy S6	Front Camera[3] – SM-G920FR051585 Rear Camera[4] – G920F_16_L	5.1" Quad HD Super AMOLED (2560x1440) Display[5]	Front Proximity/Light sensor Top infrared port Rear flash led[6]	Samsung Exynos 7420 (64-bit, 14nm) Octa core (2.1GHz Quad + 1.5GHz Quad)[7]	2015
Samsung Galaxy S6 Edge	Front Camera3 – SM-G920FR051585	5.1" Quad HD (2560 x 1440) Super AMOLED	Front Proximity/Light sensor	Samsung Exynos 7420 (64-bit, 14nm) Octa core (2.1GHz Quad + 1.5GHz Quad)[10]	2015

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[1] *see* https://en.wikipedia.org/wiki/Samsung_Galaxy
[2] *see* https://www.samsungsfour.com/mobiles/samsung-galaxy-smartphones-complete-model-list-released-year.html
[3] *see* https://www.ifixit.com/Store/Android/Galaxy-S6-S6-Edge-Front-Camera/IF302-005?o=2
[4] *see* https://gadgetfix.com/oem-samsung-galaxy-s6-g920a-g920t-g920p-g920v-back-rear-camera-module-flex-16mp-7562.html
[5] *see* https://gadgetfix.com/lcd-screen-touch-screen-digitizer-for-black-samsung-galaxy-s6-g920a-g920v-g920p-g920t-6942.html
[6] *see* https://downloadcenter.samsung.com/content/UM/201810/20181029152035207/SM-G920W8_UG_CA_Lollipop_ENG_Web.pdf
[7] *see* https://www.ifixit.com/Teardown/Samsung+Galaxy+S6+Teardown/39174
[10] *see* https://www.ifixit.com/Teardown/Samsung+Galaxy+S6+Edge+Teardown/39158#s88423

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	Rear Camera4 – G920F_16_L	Dual Edge Display[8]	Top infrared port Rear flash led[9]		
Samsung Galaxy Note 5	Front Camera[11] – N920F_R06 1536 Rear Camera[12] – G920F_16_0 8	5.7" 1440 x 2560 pixel Super AMOLED Display[13]	Front Proximity/Light sensor Rear Heart rate sensor Rear flash led[14]	Samsung Exynos 7420 (64-bit, 14nm) Octa core (2.1GHz Quad + 1.5GHz Quad)13	2015
Samsung Galaxy S6 Active	Front Camera3 – SM-G920FR0515 85 Rear Camera4 – G920F_16_L	5.1" Quad HD Super AMOLED (2560x1440) Display[15]	Front Proximity/Light sensor Rear Heart rate sensor Rear flash led[16]	Samsung Exynos 7420 (64-bit, 14nm) Octa core (2.1GHz Quad + 1.5GHz Quad)15	2015

[8] *see* https://www.ifixit.com/Store/Android/Galaxy-S6-Edge-Screen/IF302-010?o=6
[9] *see* https://downloadcenter.samsung.com/content/UM/201607/20160706032840853/G925W8_UG_CA_E6.pdf
[11] *see* https://www.ifixit.com/Store/Android/Galaxy-Note5-Front-Camera/IF321-005?o=1
[12] *see* https://www.ifixit.com/Store/Android/Galaxy-Note5-Rear-Camera/IF321-022?o=1
[13] *see* https://www.samsung.com/global/galaxy/galaxy-note5/#!/spec
[14] *see* https://www.t-mobile.com/support/public-files/images/samsung/note-5/manual/User%20manual%20Samsung%20Galaxy%20Note5.pdf
[15] *see* https://www.samsung.com/us/mobile/phones/galaxy-s/samsung-galaxy-s6-active-at-t-gray-sm-g890azaaatt/
[16] *see* https://downloadcenter.samsung.com/content/UM/201707/20170708045603280/ATT_SM-G890A_Galaxy-S6_Active_EN_UM_N_7.0_053017_FINAL_AC.PDF

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
Samsung Galaxy S5 Neo	Front Camera – 5 MP, f/1.9, 23mm (wide) Rear Camera – 16 MP, f/1.9, 31mm (standard), AF[17]	5.1" 1080 x 1920 pixel Super AMOLED Display[17]	Front Proximity/Light/Gesture sensor Rear flash led[18]	Samsung Exynos 7580 Octa[17]	2015
Samsung Galaxy S6 Edge+/ S6 Edge+ Duos	Front Camera – SM-G920FR05 1505[19] Rear Camera – G920F_16M _08[20]	5.7" 2560 x 1440 (518 ppi) Quad HD Super AMOLED [21]	Front Proximity/Light sensor Rear Heart rate sensor Rear flash led[22]	Samsung Exynos 7420 (64-bit, 14nm) Octa core (2.1GHz Quad + 1.5GHz Quad)[21]	2015
Samsung Galaxy Tab A 8.0 (2015)[23]	Rear Camera: 8 MP, f/1.9, AF, LED flash, HDR Front Camera: 5 MP	1024x768 LCD		Quad-Core 1.2 GHz ARM Cortex-A53	
Samsung Galaxy S7/	Front Camera – Samsung	5.1" Quad HD (2560 x 1440)	Front Proximit	Global: Samsung Exynos 8890 Octa-core (4x2.3 GHz	2016

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[17] *see* https://www.gsmarena.com/samsung_galaxy_s5_neo-6506.php
[18] *see* https://downloadcenter.samsung.com/content/UM/201607/20160706031524520/G903W_UG_CA_E2a.pdf
[19] *see* https://www.replacebase.co.uk/samsung-galaxy-s6-and-s6-edge-replacement-front-camera-module-oem
[20] *see* https://www.fixez.com/samsung-galaxy-s6-edge-plus-rear-facing-camera
[21] *see* https://www.samsung.com/global/galaxy/galaxy-s6-edge-plus/#!/spec
[22] *see* https://downloadcenter.samsung.com/content/UM/201708/20170802034814167/TMO_SM-G928T_Galaxy_S6-Edge-Plus_EN_UM_N_7.0_060817_FINAL_AC.pdf
[23] *see* https://en.wikipedia.org/wiki/Samsung_Galaxy_Tab_A_8.0

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
S7 Edge/ S7 Active	S5K4E6 5 MP (2592×1464), f/1.7 aperture, 1440p/1080p/720p video recording Rear Camera – Samsung ISOCELL S5K2L1 or Sony Exmor RS IMX260 12 MP (4032×3024), 1.4 µm pixel size, f/1.7 aperture[24]	Super AMOLED S7 Edge including: Dual Edge Display[25]	y/Light sensor Rear Heart rate sensor Rear flash led[26]	Mongoose & 4x1.6 GHz Cortex-A53) USA and China: Qualcomm Snapdragon 820 Quad-core (2x2.15 GHz Kryo & 2x1.6 GHz Kryo)24	
Samsung Galaxy Note 7/ Note Fan Edition[27]	Front camera – Samsung ISOCELL S54KE6 5.0 MP f/1.7 with wide-angle lens Rear camera –Samsung	5.7" Quad HD (2560×1440) Super AMOLED	Iris recognition led	Global (Note 7): Samsung Exynos 8890 Global (Note FE): Samsung Exynos 8890 Canada/China/US/Japan (Note 7): Qualcomm Snapdragon 820	2016

[24] *see* https://en.wikipedia.org/wiki/Samsung_Galaxy_S7
[25] *see* https://www.samsung.com/us/mobile/phones/galaxy-s/samsung-galaxy-s7--32gb---unlocked---black-onyx-sm-g930uzkaxaa/
[26] *see* https://downloadcenter.samsung.com/content/UM/201808/20180816062707986/GEN_SM-G930U_SM-G935U_EN_UM_O_8.0_080318_FINAL_AC.pdf
[27] *see* https://en.wikipedia.org/wiki/Samsung_Galaxy_Note_7

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	ISOCELL S5K2L1 or Sony Exmor R IMX260 12 MP (1.4 μm), f/1.7 aperture with fast Dual Pixel autofocus Technology, 4K video recording at 30 fps, 1080p at 60 fps, 720p at 240 fps Iris recognition camera; and Proximity/Light sensor.				
Samsung Galaxy Tab A 10.1 (2016)[28]	Front Camera – 2 MP Rear Camera – 8.0 MP AF camera with flash.	1920x1200 10.1" PLS TFT LCD	LED Flash	Samsung Exynos 7870	2016
Samsung Galaxy S8[29]	Rear Camera: 12 MP, f/1.7, 26mm (wide), 1/2.55",	Super AMOLED, HDR10	LED flash	Exynos 8895 (10 nm) – EMEA Qualcomm MSM8998 Snapdragon 835 (10 nm) - USA & China	2017

[28] *see* https://en.wikipedia.org/wiki/Samsung_Galaxy_Tab_A_10.1
[29] *see* https://www.gsmarena.com/samsung_galaxy_s8-8161.php

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	1.4μm, dual pixel PDAF, OIS, LED flash, auto-HDR, panorama Front Camera: 8 MP, f/1.7, 25mm (wide), 1/3.6", 1.22μm, AF, 2 MP (dedicated iris scanner camera), Dual video call, Auto-HDR Iris scanner			Octa-core (4x2.3 GHz Mongoose M2 & 4x1.7 GHz Cortex-A53) - EMEA Octa-core (4x2.35 GHz Kryo & 4x1.9 GHz Kryo) - USA & China	
Samsung Galaxy S8+[30]	Rear Camera: 12 MP, f/1.7, 26mm (wide), 1/2.55", 1.4μm, dual pixel PDAF, OIS, LED flash, auto-HDR, panorama Front camera: 8	Super AMOLED	LED Flash	Samsung Exynos 8895 (10 nm) – EMEA Qualcomm MSM8998 Snapdragon 835 (10 nm) - USA & China Octa-core (4x2.3 GHz Mongoose M2 & 4x1.7 GHz Cortex-A53) - EMEA	2017

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[30] *see* https://www.gsmarena.com/samsung_galaxy_s8+-8523.php

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	MP, f/1.7, 25mm (wide), 1/3.6", 1.22µm, AF, 2 MP (dedicated iris scanner camera)				
Samsung Galaxy S8 Active[31]	Rear Camera: 12 MP, f/1.7, 26mm (wide), 1/2.55", 1.4µm, dual pixel PDAF, OIS, LED flash, auto-HDR, panorama Front Camera: 8 MP, f/1.7, 25mm (wide), 1/3.6", 1.22µm, AF, 2 MP	Super AMOLED, HDR10	LED flash	Qualcomm MSM8998 Snapdragon 835 (10 nm), Octa-core (4x2.35 GHz Kryo & 4x1.9 GHz Kryo)	2017
Samsung Galaxy Tab S3[32]	Rear Camera: 13 MP, f/1.9, 27mm (wide), AF, LED flash,	Super AMOLED	LED flash	Qualcomm MSM8996 Snapdragon 820 (14 nm) Quad-core (2x2.15 GHz Kryo & 2x1.6 GHz Kryo)	2017

[31] *see* https://www.gsmarena.com/samsung_galaxy_s8_active-8676.php
[32] *see* https://www.gsmarena.com/samsung_galaxy_tab_s3_9_7-8554.php

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Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	HDR, panorama Front Camera: 5 MP, f/2.2, 23mm (wide)				
Samsung Galaxy Tab A 8.023 (2017)[33]	Rear Camera: 8 MP, f/1.9, AF, LED flash, HDR Front Camera: 5 MP	1280x800 IPS LCD	LED flash	Qualcomm MSM8917 Snapdragon 425 (28 nm) Quad-core 1.4 GHz Cortex-A53	2017
Samsung Galaxy Tab Active[34]	Rear Camera: 3.15 MP, AF, LED flash Front Camera: 1.2 MP	LCD	LED flash	Qualcomm Snapdragon 400 (28 nm) Quad-core 1.2 GHz Cortex-A7	2017
Samsung S9/ S9+[35]	Rear camera: S9: Sony IMX345; Samsung Isocell S5K2L3; S9+: Sony IMX345; Samsung Isocell S5K2L3 Dual;	5.8" Super AMOLED display with 1440x2960 pixel resolution (Galaxy S9); 6.2" Super AMOLED	Iris recognition LED	Global: Samsung Exynos 9810 USA/Canada/China/ HK/Japan/Latin America: Qualcomm Snapdragon 845	2018

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[33] *see* https://www.gsmarena.com/samsung_galaxy_tab_a_8_0_(2017)-8725.php
[34] *see* https://www.gsmarena.com/samsung_galaxy_tab_active-6659.php
[35] *see* https://en.wikipedia.org/wiki/Samsung_Galaxy_S9

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	Front camera: Sony IMX320; Samsung Isocell S5K31; Iris recognition camera; and Proximity/Light sensor.	display with 1440x2960 pixel resolution (Galaxy S9+);			
Samsung S Light Luxury[36]	Rear Camera: 16 MP, LED flash, auto-HDR, panorama Front camera: 8 MP, f/1.7, 25mm (wide), 1/3.6", 1.22µm, AF, 2 MP (dedicated iris scanner camera)		LED flash	Snapdragon 660 chip	2018
Samsung Galaxy Tab S4[37]	Rear Camera: 13 MP, AF, LED flash,	Super AMOLED ; 10.5",	LED flash	Chipset - Qualcomm MSM8998 Snapdragon 835 (10 nm)	2018

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[36] *see* https://www.theverge.com/circuitbreaker/2018/5/21/17375500/samsung-galaxy-s-light-luxury-china-launch-release-date-price
[37] *see* https://www.gsmarena.com/samsung_galaxy_tab_s4_10_5-9262.php

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	HDR, panorama Front Camera: 8 MP, 1080p @ 30fps video	1600 x 2560 pixels, 16:10 ratio		CPU - Octa-core (4x2.35 GHz Kryo & 4x1.9 GHz Kryo) GPU - Adreno 540	
Samsung Galaxy Tab A 10.5[38]	Rear Camera: 8 MP, f/1.9, AF, LED flash, panorama, 1080p video @ 30fps Front Camera: 5 MP, f/2.2, 1080p video @ 30fps	IPS LCD, 10.5", 1200 x 1920 pixels, 16:10 ratio	LED Flash	Chipset - Qualcomm SDM450 Snapdragon 450 (14 nm) CPU - Octa-core 1.8 GHz Cortex-A53 GPU - Adreno 506	2018
Samsung Galaxy Note 9[39]	Rear Camera (dual): 12 MP, f/1.5-2.4, 26mm (wide), 1.4µm, dual pixel PDAF, OIS; 12 MP, f/2.4, 52mm (telephoto), 1.0µm, AF, OIS, 2x optical zoom; LED flash, auto-HDR,	Super AMOLED, HDR10; 6.4"; 1440 x 2960 pixels, 18.5:9 ratio	LED flash	Chipset - Qualcomm SDM845 Snapdragon 845 (10 nm) CPU - Octa-core (4x2.8 GHz Kryo 385 Gold & 4x1.7 GHz Kryo 385 Silver) GPU - Adreno 630	2018

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[38] *see* https://www.gsmarena.com/samsung_galaxy_tab_a_10_5-9263.php
[39] *see* https://www.gsmarena.com/samsung_galaxy_note9-9163.php

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	panorama; 4K@60fps (no OIS/EIS), 4K@30fps 1080p@30/60/240fps, 720p@960fps, HDR, gyro-EIS & OIS Front Camera (dual): 8 MP, f/1.7, 25mm (wide), 1.22µm, AF, 2 MP (dedicated iris scanner camera); Dual video call, Auto-HDR; 1440p@30fps				
Samsung Galaxy Tab S5e[40]	Front Camera – 8.0 MP Rear Camera – 13.0 MP	10.5" Super AMOLED display		Octa Core (Dual 2.0GHz + Hexa 1.7GHz), Qualcomm SDM 670	2019
Galaxy Tab A	Rear Camera: 8	1280x800 IPS LCD		Quad-Core 2 GHz ARM Cortex-A53	2019

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
Kids 8.0 (2019)23	MP, f/1.9, AF, LED flash, HDR Front Camera: 5 MP				
Samsung Galaxy Tab A 10.1 (2019)28	Front Camera – 2 MP Rear Camera – 8.0 MP AF camera with flash.	1920x1200 10.1" PLS TFT LCD	LED Flash	Samsung Exynos 7904	2019
Samsung Galaxy S10[41]	Rear Camera: 12 MP, f/1.5-2.4, 26mm (wide), 1/2.55", 1.4μm, Dual Pixel PDAF, OIS 12 MP, f/2.4, 52mm (telephoto), 1/3.6", 1.0μm, AF, OIS, 2x optical zoom 16 MP, f/2.2, 12mm (ultrawide), 1/3.1", 1.0μm, Super Steady video, LED flash,	Dynamic AMOLED, HDR10+	LED Flash	Qualcomm SM8150 Snapdragon 855 (7 nm) - USA/China Octa-core (2x2.73 GHz Mongoose M4 & 2x2.31 GHz Cortex-A75 & 4x1.95 GHz Cortex-A55) - EMEA/LATAM	2019

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[41] *see* https://www.gsmarena.com/samsung_galaxy_s10-9536.php

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Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	auto-HDR, panorama Front Camera: 10 MP, f/1.9, 26mm (wide), 1/3", 1.22µm, Dual Pixel PDAF				
Samsung Galaxy S10+[42]	Rear Camera: 12 MP, f/1.5-2.4, 26mm (wide), 1/2.55", 1.4µm, Dual Pixel PDAF, OIS 12 MP, f/2.4, 52mm (telephoto), 1/3.6", 1.0µm, AF, OIS, 2x optical zoom 16 MP, f/2.2, 12mm (ultrawide), 1/3.1", 1.0µm, Super Steady video LED flash, auto-HDR, panorama	Dynamic AMOLED, HDR10+	LED Flash	Qualcomm SM8150 Snapdragon 855 (7 nm) - USA/China Octa-core (2x2.73 GHz Mongoose M4 & 2x2.31 GHz Cortex-A75 & 4x1.95 GHz Cortex-A55) - EMEA/LATAM	2019

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[42] *see* https://www.gsmarena.com/samsung_galaxy_s10+-9535.php

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Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	Front Camera: 10 MP, f/1.9, 26mm (wide), 1/3", 1.22μm, Dual Pixel PDAF 8 MP, f/2.2, 22mm (wide), 1/4", 1.12μm, depth sensor				
Samsung Galaxy S10e[43]	Rear Camera: 12 MP, f/1.5-2.4, 26mm (wide), 1/2.55", 1.4μm, Dual Pixel PDAF, OIS 16 MP, f/2.2, 12mm (ultrawide), 1/3.1", 1.0μm, Super Steady video LED flash, auto-HDR, panorama Front Camera: 10 MP, f/1.9, 26mm (wide), 1/3", 1.22μm,	Dynamic AMOLED , HDR10+	LED Flash	Qualcomm SM8150 Snapdragon 855 (7 nm) - USA/China Octa-core (2x2.73 GHz Mongoose M4 & 2x2.31 GHz Cortex-A75 & 4x1.95 GHz Cortex-A55) - EMEA/LATAM	2019

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[43] *see* https://www.gsmarena.com/samsung_galaxy_s10e-9537.php

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Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	Dual Pixel PDAF				
Samsung Galaxy S10 5G[44]	Rear Camera: 12 MP, f/1.5-2.4, 26mm (wide), 1/2.55", 1.4μm, Dual Pixel PDAF, OIS 12 MP, f/2.4, 52mm (telephoto), 1/3.6", 1.0μm, AF, OIS, 2x optical zoom 16 MP, f/2.2, 12mm (ultrawide), 1/3.1", 1.0μm, Super Steady video 0.3 MP, TOF 3D, (depth) LED flash, auto-HDR, panorama Front Camera: 10 MP, f/1.9, 26mm (wide), 1/3", 1.22μm, Dual Pixel PDAF	Dynamic AMOLED, HDR10+	LED Flash	Qualcomm SM8150 Snapdragon 855 (7 nm) – USA Octa-core (2x2.73 GHz Mongoose M4 & 2x2.31 GHz Cortex-A75 & 4x1.95 GHz Cortex-A55) - Global	2019

[44] *see* https://www.gsmarena.com/samsung_galaxy_s10_5g-9588.php

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Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	TOF 3D, (depth sensor)				
Samsung Galaxy (Z) Fold[45]	Rear camera 12 MP, f/1.5/2.4 dual-aperture 12 MP, f/2.4 telephoto, 2x optical zoom 16 MP, f/2.2, ultra-wide-angle Front camera Outside: 10 MP, f/2.2 Inside: 10 MP, f/2.2, 8 MP RGB depth sensor	Dynamic AMOLED, HDR10+, 1536 × 2152, 7.3 in (19 cm), 4.2:3 ratio, 362 ppi External display Dynamic AMOLED, HDR10+, 720 × 1680, 4.6 in (12 cm), 21:9 ratio, 397 ppi		Qualcomm Snapdragon 855 Octa-core (1x2.84 GHz, 3x2.42 GHz and 4x1.8 GHz) Kryo 485	2019
Samsung Z4[46]	Rear Camera: 5 MP, f/2.2; Dual-LED flash, panorama, HDR; 720p@30fps Front Camera: 5	IPS LCD; 4.5"; 480 x 800 pixels, 5:3 ratio	LED flash	CPU - Quad-core 1.5 GHz	2017

[45] *see* https://en.wikipedia.org/wiki/Samsung_Galaxy_Fold
[46] *see* https://www.gsmarena.com/samsung_z4-8682.php

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
	MP, f/2.2; LED flash				
Samsung Z2[47]	Rear Camera: 5 MP, f/2.2; LED flash; 720p@30fps Front Camera: VGA, f/2.4	TFT, 256K colors; 4.0"; 480 x 800 pixels, 5:3 ratio	LED Flash	Chipset - Spreadtrum SC9830 CPU - Quad-core 1.5 GHz Cortex-A7 GPU - Mali-400MP2	2016
Samsung Z3 Corporate[48]	Rear Camera: 8 MP, f/2.2, AF; LED flash, panorama, HDR; 1080p@30fps Front Camera: 5 MP, f/2.2	Super AMOLED; 5.0"; 720 x 1280 pixels, 16:9 ratio	LED flash	Chipset - Qualcomm MSM8916 Snapdragon 410 (28 nm) CPU - Quad-core 1.2 GHz Cortex-A53 GPU - Adreno 306	2016
Samsung Z3[49]	Rear Camera: 8 MP, f/2.2, AF; LED flash, panorama, HDR; 720p@30fps Front Camera: 5 MP, f/2.2	Super AMOLED; 5.0"; 720 x 1280 pixels, 16:9 ratio	LED Flash	Chipset - Spreadtrum SC7730 CPU - Quad-core 1.3 GHz Cortex-A7 GPU - Mali-400	2015

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[47] *see* https://www.gsmarena.com/samsung_z2-8288.php
[48] *see* https://www.gsmarena.com/samsung_z3_corporate-8170.php
[49] *see* https://www.gsmarena.com/samsung_z3-7273.php

Phone Model[1]	"Cameras and Sensors" (referred to collectively as "Cameras")	"Display"	"Light Sources"	"Processors or Systems-On-Chips"	Year[2]
Samsung Z1[50]	Rear Camera: 3.15 MP; LED flash; 480p@15fps Front Camera: VGA	PLS IPS; 4.0"; 480 x 800 pixels, 5:3 ratio	LED flash	Chipset - Spreadtrum SC7727S CPU - Dual-core 1.2 GHz Cortex-A7 GPU - Mali-400	2015
Samsung Metro 360[51]	Rear Camera: 3.15 MP; 240p@15fps Front Camera: NO	TFT, 256K colors; 2.4"; 240 x 320 pixels, 4:3 ratio	No	312 MHz CPU	2015
Samsung Xcover 550[52]	Rear Camera: 3.15 MP; LED flash; video Front Camera: NO	TFT; 2.4"; 240 x 320 pixels, 4:3 ratio	LED flash	Chipset - Spreadtrum SC7703 CPU - Dual-core 460 MHz	2015

P.R. 3-1(c): Claim Charts

Claim charts identifying specifically where each element of each asserted claim is found

within the accused instrumentalities are attached hereto as Exhibit A ('924 patent), Exhibit B ('431

patent), Exhibit C ('949 patent), and Exhibit D ('079 patent). The attached claim charts reference

the specific hardware components for each Accused Product as identified in the component chart

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[50] *see* https://www.gsmarena.com/samsung_z1-6894.php
[51] *see* https://www.gsmarena.com/samsung_metro_360-7751.php
[52] *see* https://www.gsmarena.com/samsung_xcover_550-7119.php

presented in the above Identification Of Accused Products. Discovery is ongoing and GTP reserves the right to amend and supplement its infringement contentions, including in response to the production of confidential information or source code. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

P.R. 3-1(d):   Disclosure Of Literal Infringement And Infringement Under The Doctrine Of Equivalents

GTP asserts that each claim limitation for each Infringed Claim is literally infringed, as set forth in the attached claims charts. *See* Exs. A-D. GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Samsung may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

P.R. 3-1(e): Disclosure Of Priority Claims

The '924 patent is entitled to a priority date of July 8, 1999.

The '431 patent is entitled to a priority date of July 8, 1999.

The '949 patent is entitled to a priority date of May 11, 1999.

The '079 patent is entitled to a priority date of November 9, 1998.

P.R. 3-1(f): GTP's Reliance On Its Instrumentalities

At this time, GTP does not intend to rely on an assertion that its instrumentalities practice the Asserted Patents.

P.R. 3-2: Document Production

GTP is not aware of any documents responsive to P.R. 3-2(a).

Documents responsive to P.R. 3-2(b) and P.R. 3-2(c) were produced at GTP_00000001 - GTP_00000916.

Discovery is ongoing and GTP reserves the right to supplement its production with documents responsive to P.R. 3-2.

Dated: April 28, 2021   Respectfully submitted,

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ATTORNEYS FOR PLAINTIFF

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<u>CERTIFICATE OF SERVICE</u>

The undersigned hereby certifies that on April 28, 2021 the undersigned caused a copy of

the foregoing document to be served on all counsel of record, via the electronic mail, pursuant to

the Federal Rules of Civil Procedure.

<div align="center">

/s/ Fred I. Williams
Fred I. Williams

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GTP v. Samsung: Claim Chart for U.S. Patent No. 8,194,924

U.S. Patent No. 8,194,924 Claim Elements	Evidence of Use
1[preamble]: A handheld device comprising:	The preamble is not limiting. To the extent it is found to be limiting, each of the Accused Products is a handheld device.
[a]: a housing;	Each of the Accused Products includes a housing, including, but not limited to, the body, casing, or shell of the device.
[b]: a computer within the housing;	Each of the Accused Products includes a computer within the housing. Specifically, each of the Accused Products includes a computer including, but not limited to, its Processors or Systems-On-Chips and associated hardware and software. *See* Initial Infringement Contentions ("IIC"), Section P.R. 3-1(b). The Processors or Systems-On-Chips provided in each of the Accused Products are within said housing. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
[c]: a first camera oriented to view a user of the handheld device and having a first camera output; and	Each of the Accused Products includes a first camera oriented to view a user of the handheld device and having a first camera output. Specifically, each of the Accused Products includes a camera means including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software. At least the Camera(s) located on the front of the Accused Products are oriented to view a user of the handheld device and having a first camera output.

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U.S. Patent No. 8,194,924 Claim Elements	Evidence of Use
[d]: a second camera oriented to view an object other than the user of the device and having a second camera output, wherein the first and second cameras include non-overlapping fields of view, and wherein the computer is adapted to perform a control function of the handheld device based on at least one of the first camera output and the second camera output.	Each of the Accused Products includes a second camera oriented to view an object other than the user of the device and having a second camera output, wherein the first and second cameras include non-overlapping fields of view, and wherein the computer is adapted to perform a control function of the handheld device based on at least one of the first camera output and the second camera output. Specifically, each of the Accused Products includes a second camera including, but not limited to, the rear facing Camera(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software. The first and second include non-overlapping fields of view. The Processors or Systems-On-Chips and associated hardware and software in the Accused Products (*See* IIC, Section P.R. 3-1(b)) are adapted to perform a control function of the handheld device based on at least one of the first camera output and the second camera output. The control functions that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/

U.S. Patent No. 8,194,924 Claim Elements	Evidence of Use
	https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
2. The handheld device of claim 1 wherein the handheld device comprises a mobile phone.	The Accused Products are mobile phones. *See* IIC, Section P.R. 3-1(b).
3. The handheld device of claim 1 wherein the first camera is adapted to acquire an image of at least a portion of the user.	The first camera of the Accused Products is adapted to acquire an image of at least a portion of the user. For example, the first camera in the Accused Products can be a front facing camera that can be used to capture a picture of the user (a so-called "selfie"). *See*, *e.g.*: https://www.samsung.com/sg/support/mobile-devices/how-to-take-selfie-mode-images-using-samsung-mobile-front-camera/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

U.S. Patent No. 8,194,924 Claim Elements	Evidence of Use
4. The handheld device of claim 1 wherein the second camera is adapted to acquire an image of the object.	The second camera of the Accused Products is adapted to acquire an image of the object. *See, e.g.*: https://www.youtube.com/watch?v=5QB79-0nDfg This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
5. The handheld device of claim 1 wherein the second camera is adapted to acquire a video of the object.	The second camera of the Accused Products is adapted to acquire a video of the object. *See, e.g.*: https://www.youtube.com/watch?v=5QB79-0nDfg This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
6. The handheld device of claim 1 wherein the computer is operable to determine a gesture based on at least one of the first camera output and the second camera output.	The Processors or Systems-On-Chips and associated hardware and software in the Accused Products (*See* IIC, Section P.R. 3-1(b)) are operable to determine a gesture based on at least one of the first camera output and the second camera output. The gestures that can be determined by at least the output of either the first camera or the second camera in the Accused Products include gestures associated with, but not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On

U.S. Patent No. 8,194,924 Claim Elements	Evidence of Use
	Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
7. The handheld device of claim 1 wherein the computer is operable to determine a facial expression based on at least one of the first camera output and the second camera output.	The Processors or Systems-On-Chips and associated hardware and software in the Accused Products (*See* IIC, Section P.R. 3-1(b)) are operable to determine a facial expression based on at least one of the first camera output and the second camera output. The facial expressions that can be determined by at least the output of either the first camera or the second camera in the Accused Products include facial expressions associated with, but not limited to: Smile Shutter, Iris Scan Unlock, Face ID Unlock, Face Location, Live Masks Track/Apply, AR Emoji, Beauty Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/

U.S. Patent No. 8,194,924 Claim Elements	Evidence of Use
	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
8. The handheld device of claim 1 wherein the computer is adapted to determine at least one of the position and the orientation of the object based on the second camera output.	The Accused Products are adapted to determine at least one of the position and the orientation of the object based on the second camera output. For example, the position and the orientation of the object are determined based on the second camera output for purposes including, but not limited to: Tracking Autofocus, Smart OIS, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, Portrait Mode, and Smile Shot. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
9. The handheld device of claim 6 wherein the gesture is performed by a person other than the user of the handheld device.	The Processors or Systems-On-Chips and associated hardware and software in the Accused Products (*See* IIC, Section P.R. 3-1(b)) are operable to determine a gesture performed by a person other than the user of the handheld device. The gestures of the person other than the user of the handheld device that can be determined by at least the output of either the first camera or the second camera in the Accused Products include gestures associated with, but not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur

U.S. Patent No. 8,194,924 Claim Elements	Evidence of Use
	Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
10. The handheld device of claim 1 wherein the computer is adapted to recognize the object based on the second camera output.	The Processors or Systems-On-Chips and associated hardware and software in the Accused Products (*See* IIC, Section P.R. 3-1(b)) are adapted to recognize the object based on the second camera output. The objects that can be determined by the output of the second camera of the Accused Products include, but are not limited to: Smile Shutter, Face Location, Beauty Mode, and Smile Shot. *See, e.g.*:

U.S. Patent No. 8,194,924 Claim Elements	Evidence of Use
	https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
12. The handheld device of claim 1 wherein the computer is adapted to determine a reference frame of the object.	The Processors or Systems-On-Chips and associated hardware and software in the Accused Products (*See* IIC, Section P.R. 3-1(b)) are adapted to determine a reference frame of the object. The frames of reference of the object that can be determined by the Accused Products include, but are not limited to: Tracking Autofocus, Smart OIS, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/

U.S. Patent No. 8,194,924 Claim Elements	Evidence of Use
	https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
14. The handheld device of claim 1 wherein the computer is adapted to transmit information over an internet connection.	The Processors or Systems-On-Chips and associated hardware and software in the Accused Products (*See* IIC, Section P.R. 3-1(b)), working in conjunction with radios in the Accused Products, are adapted to transmit information over an internet connection. *See, e.g.*: https://www.samsung.com/us/mobile/phones/galaxy-s/galaxy-s9plus-64gb--unlocked--sm-g965uzkaxaa/#specs\ https://www.samsung.com/us/mobile/phones/galaxy-s/galaxy-s9plus-64gb--unlocked--sm-g965uzkaxaa/#specs This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

GTP v. Samsung: Claim Chart for U.S. Patent No. 7,933,431

U.S. Patent No. 7,933,431 Claim Elements	Evidence of Use
1[preamble] A method for controlling a handheld computing device comprising the steps of:	The preamble is not limiting. To the extent it is found to be limiting, each of the Accused Products provides a method for controlling a handheld computing device including, but not limited to, through the use of its Processors or Systems-On-Chips. *See* Initial Infringement Contentions ("IIC"), Section P.R. 3-1(b).
[a] holding said device in one hand;	The Accused Products are designed to be held in one hand, Defendants provided instructions to users to hold the Accused Products in one hand, and the Accused Products were held in one hand by users including, but not limited to, Defendants' employees, contractors, and agents.
[b] moving at least one finger in space in order to signal a command to said device;	The Accused Products are configured to detect movement of at least one finger in space in order to signal a command to said device, Defendants provided instructions to users to signal commands to said device by moving at least one finger in space, and users including, but not limited to, Defendants' employees, contractors, and agents signaled commands to said device by moving at least one finger in space.
	The signals and commands each Accused Product can receive by a user moving at least one finger in space are signals and commands associated with but are not limited to the following features of the Accused Products: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji.
	See, e.g.:
	https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/
	https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/

U.S. Patent No. 7,933,431 Claim Elements	Evidence of Use
	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
[c] electro-optically sensing light reflected from said at least one finger using a sensing means associated with said device;	Through the Accused Products, Defendants electro-optically sense light reflected from said at least one finger using a sensing means associated with said device.

Specially, each of the Accused Products uses its Camera(s) and/or Processors or Systems-On-Chips as specified in IIC, Section P.R. 3-1(b) and associated hardware and software to sense light reflected from said at least one finger using a sensing means associated with said device.

This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

This limitation is not governed by 112 ¶ 6. |
| [d] determining from said sensed light the movement of said finger, and | Through the Accused Products, Defendants determine from said sensed light the movement of said finger.

Specially, each of the Accused Products uses its Camera(s) and/or its Processors or Systems-On-Chips as specified in IIC, Section P.R. 3-1(b) and associated hardware and software to determine from said sensed light the movement of said finger.

This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases. |

U.S. Patent No. 7,933,431 Claim Elements	Evidence of Use
[e] using said sensed finger movement information, controlling said device in accordance with said command.	Through the Accused Products, Defendants use said sensed finger movement information to control said device in accordance with said command. Specially, each of the Accused Products uses its Camera(s) and/or its Processors or Systems-On-Chips as specified in IIC, Section P.R. 3-1(b) and associated hardware and software to use said sensed finger movement information to control said device in accordance with said command. The commands used and the controls achieved within each Accused Product by sensing the movement of at least one finger in space are commands and controls associated with but are not limited to the following features of the Accused Products: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
2. A method according to claim 1, wherein at least one camera is utilized to effect said electro-optical sensing.	Through the Accused Products, Defendants utilize at least one camera to effect said electro-optical sensing. Specifically, each of the Accused Products includes a camera including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b). The Camera(s) provided in each of the Accused Products effect electro-optical sensing.

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U.S. Patent No. 7,933,431 Claim Elements	Evidence of Use
	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
3. A method according to claim 1, including the further step of acquiring an image of at least a portion of the user of the device.	Through the Accused Products, Defendants acquire an image of at least a portion of the user of the device. Specifically, each of the Accused Products includes a camera including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b). The Camera(s) provided in each of the Accused Products acquires an image of at least a portion of the user of the device. Examples of Defendants acquiring an image of at least a portion of the user of the device include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that

U.S. Patent No. 7,933,431 Claim Elements	Evidence of Use
	Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
4. A method according to claim 1, wherein said movement is sensed in 3 dimensions.	Through the Accused Products, Defendants sense movement in 3 dimensions. Specially, each of the Accused Products uses its Camera(s) and/or its Processors or Systems-On-Chips as specified in IIC, Section P.R. 3-1(b) and associated hardware and software to sense movement in 3 dimensions. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
6. A method according to claim 1, wherein movement of two fingers is sensed.	Through the Accused Products, Defendants sense movement of two fingers. Specially, each of the Accused Products uses its Camera(s) and/or its Processors or Systems-On-Chips as specified in IIC, Section P.R. 3-1(b) and associated hardware and software to sense movement of two fingers. Examples of sensing movement of two fingers in the Accused Products include, but are not limited to: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*:

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U.S. Patent No. 7,933,431 Claim Elements	Evidence of Use
	https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
7[preamble]: Handheld computer apparatus comprising:	The preamble is not limiting. To the extent it is found to be limiting, each of the Accused Products includes a handheld apparatus that includes a computer, including, but not limited to, its Processors or Systems-On-Chips. *See* Initial Infringement Contentions ("IIC"), Section P.R. 3-1(b).
[a]: a housing;	Each of the Accused Products includes a housing, including, but not limited to, the body, casing, or shell of the device.
[b]: a camera means associated with said housing for obtaining an image using reflected light of at least one object positioned by a user operating said object;	Each of the Accused Products includes camera means associated with said housing for obtaining an image using reflected light of at least one object positioned by a user operating said object. Specifically, each of the Accused Products includes a camera means including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software. The Camera(s) provided in each of the Accused Products is associated with the housing and is for obtaining an image using reflected light of at least one object positioned by a user operating said object. The objects of which images can be obtained using the Accused Products include, but are not limited to, the objects imaged with: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On

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	Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases. This limitation is not governed by 112 ¶ 6.
[c]: computer means within said housing for analyzing said image to determine information concerning a position or movement of said object; and	Each of the Accused Products includes computer means within said housing for analyzing said image to determine information concerning a position or movement of said object. Specifically, each of the Accused Products includes computer means including, but not limited to, its Processors or Systems-On-Chips and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The Processors or Systems-On-Chips provided in each of the Accused Products are within said housing and analyze said image to determine information concerning a position or movement of said object. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that

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	Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases. This limitation is not governed by 112 ¶ 6.
[d]: means for controlling a function of said apparatus using said information.	Each of the Accused Products includes computer means within said housing for analyzing said image to determine information concerning a position or movement of said object. Specifically, each of the Accused Products includes computer means including, but not limited to, its Processors or Systems-On-Chips and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The Processors or Systems-On-Chips provided in each of the Accused Products are within said housing and analyze said image to determine information concerning a position or movement of said object. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases. This limitation is not governed by 112 ¶ 6. However if this element is governed by 112 ¶ 6, then the structures, acts, and materials described in this portion of the claim chart are the structures, acts and/or materials in the accused products that perform the claimed function.
8. Apparatus according to claim 7, wherein said object is a finger.	The camera means in the Accused Products, including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software obtains images of a finger. The Accused Products obtain images of a finger for purposes including, but not limited to: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji.

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9. Apparatus according to claim 7, further including a display function which is controlled.	Each of the Accused Products includes a display function which is controlled. The Accused Products control a display function for purposes including, but not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/

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	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
11. Apparatus according to claim 7, further including means for transmitting information.	The Accused Products include means for transmitting information including, but not limited to, radios, antennas, and associated hardware and software. *See, e.g.*: https://www.samsung.com/us/mobile/phones/galaxy-s/galaxy-s9plus-64gb--unlocked--sm-g965uzkaxaa/#specs\ https://www.samsung.com/us/mobile/phones/galaxy-s/galaxy-s9plus-64gb--unlocked--sm-g965uzkaxaa/#specs This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

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12. Apparatus according to claim 7, further including a light source for illuminating said object.	Each of the Accused Products includes a light source for illuminating said object. Specifically, each of the Accused Products includes a light source including, but not limited to, a Display for illuminating said object. *See* IIC, Section P.R. 3-1(b). As specified in IIC, Section P.R. 3-1(b), specified Accused Products also include other Light Sources, and those Light Sources are also for illuminating said object. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
13. Apparatus according to claim 7, wherein said apparatus is a cellular phone.	The Accused Products are cellular phones. *See* IIC, Section P.R. 3-1(b).
14[preamble]: A method for controlling a handheld computing device comprising the steps of:	The preamble is not limiting. To the extent it is found to be limiting, each of the Accused Products provides a method for controlling a handheld computing device including, but not limited to, through the use of its Processors or Systems-On-Chips. *See* Initial Infringement Contentions ("IIC"), Section P.R. 3-1(b).
[a]: providing a computer within said device;	Defendants provide a computer within the Accused Products including, but not limited to, the Processors or Systems-On-Chips. *See* Initial Infringement Contentions ("IIC"), Section P.R. 3-1(b).

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[b]: associating a camera with said device, said camera viewing at least a portion of the body of a user operating said device or an object held by said user, in order provide image data concerning said portion or object;	Defendants associate a camera with the Accused Products, said camera viewing at least a portion of the body of a user operating said device or an object held by said user, in order provide image data concerning said portion or object. Specifically, each of the Accused Products includes a camera including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b). The Camera(s) provided in each of the Accused Products view at least a portion of the body of a user operating said device or an object held by said user, in order provide image data concerning said portion or object. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
[c]: using said computer, analyzing said image data to determine information concerning a user input command; and	Through the Accused Products, Defendants use the computer to analyze said image data to determine information concerning a user input command. Specifically, each of the Accused Products includes a computer including, but not limited to, the Processors or Systems-On-Chips specified in IIC, Section P.R. 3-1(b). The Processors or Systems-On-Chips in each Accused Product analyze image data to determine information concerning a user input command. The user input commands determined by the Accused Products include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.:*

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[d]: from said determined information, controlling a function of said device.	Through the Accused Products, Defendants use the determined information to control a function of said device. Specifically, each of the Accused Products includes a computer including, but not limited to, the Processors or Systems-On-Chips specified in IIC, Section P.R. 3-1(b). The Processors or Systems-On-Chips in each Accused Product use the determined information to control a function of said device. The functions of the device controlled include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/

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15. A method according to claim 14, wherein reflected light from said body portion or object is imaged by said camera.	Through the Accused Products, Defendants image reflected light from said body portion using the camera. Specifically, each of the Accused Products includes a camera including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b). The Camera(s) provided in each of the Accused Products image reflected light from a body portion. Examples of Defendants imaging reflected light from a body portion include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/

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16. A method according to claim 14, wherein said information includes the position of the portion or object.	Through the Accused Products, Defendants use the computer to analyze said image data to determine information including the position of the portion or object. Specifically, each of the Accused Products includes a computer including, but not limited to, the Processors or Systems-On-Chips specified in IIC, Section P.R. 3-1(b). The Processors or Systems-On-Chips in each Accused Product determine information including the position of the portion or object. The determined information including the position of the portion or object includes, but is not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/

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17. A method according to claim 14, wherein said information includes the change in position of the portion or object.	Through the Accused Products, Defendants use the computer to analyze said image data to determine information including the change in position of the portion or object. Specifically, each of the Accused Products includes a computer including, but not limited to, the Processors or Systems-On-Chips specified in IIC, Section P.R. 3-1(b). The Processors or Systems-On-Chips in each Accused Product determine information including the change in position of the portion or object. The determined information including the change in position of the portion or object includes, but is not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/

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	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
18. A method according to claim 14, wherein said information includes the velocity or path of the portion or object.	Through the Accused Products, Defendants use the computer to analyze said image data to determine information including the velocity or path of the portion or object. Specifically, each of the Accused Products includes a computer including, but not limited to, the Processors or Systems-On-Chips specified in IIC, Section P.R. 3-1(b). The Processors or Systems-On-Chips in each Accused Product determine information including the velocity or path of the portion or object. The determined information including the velocity or path of the portion or object includes, but is not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/

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	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
19. A method according to claim 14, wherein said information is obtained in 3 dimensions.	Through the Accused Products, Defendants obtain information in 3 dimensions. Specially, each of the Accused Products uses its Camera(s) and/or its Processors or Systems-On-Chips as specified in IIC, Section P.R. 3-1(b) and associated hardware and software to obtain information in 3 dimensions. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
20. A method according to claim 14, wherein said information includes the pointing direction of the portion or object.	Defendants determine information including the pointing direction of the portion or object by providing, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b). *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/

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21. A method according to claim 14, wherein a display is controlled.	Through the Accused Products, Defendants control a display function. The Accused Products control a display function for purposes including, but not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
22. A method according to claim 21, wherein a virtual image on said display is moved or changed.	Through the Accused Products, Defendants display a virtual image on a display that is moved or changed. The Accused Products control a display a virtual image include, but is not limited to: AR Emoji *See, e.g.*: https://www.samsung.com/au/support/mobile-devices/how-to-use-ar-emoji/

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25. A method according to claim 14, including the further step of transmitting data to a further device.	Through the Accused Products, Defendants transmit data to a further device. *See, e.g.*: https://www.samsung.com/us/mobile/phones/galaxy-s/galaxy-s9plus-64gb--unlocked--sm-g965uzkaxaa/#specs\ https://www.samsung.com/us/mobile/phones/galaxy-s/galaxy-s9plus-64gb--unlocked--sm-g965uzkaxaa/#specs This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
26. A method according to claim 14, wherein said camera operates at 30 frames per second or greater.	Through the Accused Products, Defendants operate the camera at 30 frames per second or greater. The camera means in the Accused Products, including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software obtains images of a finger.

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	The Accused Products obtain images of a finger for purposes including, but not limited to: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
27. A method according to claim 14, wherein said controlled function relates to a game.	Through the Accused Products, Defendants provide a control function relating to a game. *See, e.g.*: https://venturebeat.com/wp-content/uploads/2019/10/ezgif-6-98449a6bc19d.gif?w=499&resize=499%2C600&strip=all https://venturebeat.com/2019/10/21/googles-motion-sense-hands-on-controlling-games-and-apps-with-gestures/

28. A method according to claim 14, including the further step of acquiring a picture of the user of the handheld device.	Through the Accused Products, Defendants acquire a picture of the user of the handheld device. Specially, each of the Accused Products uses its Camera(s) and/or its Processors or Systems-On-Chips as specified in IIC, Section P.R. 3-1(b) and associated hardware and software to acquire a picture of the user of the handheld device. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
30. A method according to claim 14, wherein said body portion indicates an expression of said user.	Through the Accused Products, Defendants provide image data of an expression of said user. Specially, each of the Accused Products uses its Camera(s) and/or its Processors or Systems-On-Chips as specified in IIC, Section P.R. 3-1(b) and associated hardware and software to provide image data of an expression of said user. Examples of sensing expressions in the Accused Products include, but are not limited to: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that

	Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
1[Pre] A portable device comprising:	The preamble is not limiting. To the extent it is found to be limiting, each of the Accused Products is a portable device.
1[a] a device housing including a forward facing portion, the forward facing portion of the device housing encompassing an electro-optical sensor having a field of view and including a digital camera separate from the electro-optical sensor; and	Each of the Accused Products includes a housing, including, but not limited to, the body, casing, or shell of the device, the housing including a forward facing portion, the forward facing portion of the device housing encompassing an electro-optical sensor having a field of view and including a digital camera separate from the electro-optical sensor. Specifically, each of the Accused Products includes cameras including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software. The Camera(s) in each of the Accused Products include a digital camera and an electro-optical sensor separate from the digital camera.
1[b] a processing unit within the device housing and operatively coupled to an output of the electro-optical sensor, wherein the processing unit is adapted to:	Each of the Accused Products includes a processing unit within the device housing and operatively coupled to an output of the electro-optical sensor. Specifically, each of the Accused Products includes a computer including, but not limited to, its Processors or Systems-On-Chips and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The Processors or Systems-On-Chips provided in each of the Accused Products are within the device housing and operatively coupled to an output of the electro-optical sensor.
1[c] determine a gesture has been performed in the electro-optical sensor field of view based on the electro-optical sensor output, and	The Accused Products determine a gesture has been performed in the electro-optical sensor field of view based on the electro-optical sensor output. Specifically, each of the Accused Products uses its Processors or Systems-On-Chips and Camera(s) to determine a gesture has been performed in the electro-optical sensor field of view based on the electro-optical sensor output. *See* IIC, Section P.R. 3-1(b). The gestures that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
	Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
1[d] control the digital camera in response to the gesture performed in the electro-optical sensor field of view, wherein the gesture corresponds to an image capture command, and wherein the image capture command causes the digital camera to store an image to memory.	The Accused Products control the digital camera in response to the gesture performed in the electro-optical sensor field of view, wherein the gesture corresponds to an image capture command, and wherein the image capture command causes the digital camera to store an image to memory. Specifically, each of the Accused Products uses its Processors or Systems-On-Chips and Camera(s) to control the digital camera in response to the gesture performed in the electro-optical sensor field of view, wherein the gesture corresponds to an image capture command, and wherein the image capture command causes the digital camera to store an image to memory. *See* IIC, Section P.R. 3-1(b). The gestures corresponding to an image capture command that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Smile Shutter, Iris

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
	Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
2. The portable device of claim 1 wherein the determined gesture includes a hand motion.	The Accused Products determine gestures including a hand motion. Specifically, each of the Accused Products uses its Processors or Systems-On-Chips and Camera(s) (*see* IIC, Section P.R. 3-1(b)) to determine a gesture including, but not limited to, a hand motion. The gestures that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
4. The portable device of claim 1 wherein the electro-optical sensor is fixed in relation to the digital camera.	The electro-optical sensors of the Accused Products are fixed in relation to the digital camera. Specifically, each of the Accused Products includes electro-optical sensors including, but not limited to, the electro-optical sensor(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software. Each of the Accused Products include a digital camera fixed in relation to the electro-optical sensor(s). *See* IIC, Section P.R. 3-1(b).

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GTP v. Samsung: Claim Chart for U.S. Patent 8,878,949

U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
5. The portable device of claim 1 further including a forward facing light source.	Each of the Accused Products includes a forward facing light source. Specifically, each of the Accused Products includes a forward facing light source including, but not limited to, a Display. *See* IIC, Section P.R. 3-1(b). As specified in IIC, Section P.R. 3-1(b), specified Accused Products also include other forward facing Light Sources. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
6. The portable device of claim 1 wherein the electro-optical sensor defines a resolution less than a resolution defined by the digital camera.	The electro-optical sensors of the Accused Products define a resolution less than a resolution defined by the digital camera. *See* IIC, Section P.R. 3-1(b).
7. The portable device of claim 1 wherein the electro-optical sensor includes at least one of a CCD detector and a CMOS detector.	The electro-optical sensors of the Accused Products include at least one of a CCD detector and a CMOS detector. *See* IIC, Section P.R. 3-1(b).
8[Pre] A computer implemented method comprising:	The preamble is not limiting. To the extent it is found to be limiting, Defendants, through the Accused Products, perform a computer implemented method. Specifically, each of the Accused Products includes a computer including, but not limited to, its Processors or Systems-On-Chips and associated hardware and software. *See* IIC, Section P.R. 3-1(b).

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
8[a] providing a portable device including a forward facing portion encompassing a digital camera and an electro-optical sensor, the electro-optical sensor having an output and defining a field of view;	Defendants provide the Accused Products, which are portable devices including a forward facing portion encompassing a digital camera and an electro-optical sensor, the electro-optical sensor having an output and defining a field of view. Specifically, each of the Accused Products includes a camera means including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software. The Camera(s) in each of the Accused Products include a digital camera and an electro-optical sensor, the electro-optical sensor having an output and defining a field of view.
8[b] determining, using a processing unit, a gesture has been performed in the electro-optical sensor field of view based on the electro-optical sensor output, wherein the determined gesture corresponds to an image capture command; and	Defendants, through the Accused Products, determine using a processing unit a gesture has been performed in the electro-optical sensor field of view based on the electro-optical sensor output, wherein the determined gesture corresponds to an image capture command. Specifically, each of the Accused Products uses its Processors or Systems-On-Chips and Camera(s) and associated hardware and software (*see* IIC, Section P.R. 3-1(b)) to determine a gesture has been performed in the electro-optical sensor field of view based on the electro-optical sensor output. The gestures that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
	https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
8[c] capturing an image to the digital camera in response to the determined gesture corresponding to the image capture command.	Defendants, through the Accused Products, capture an image to the digital camera in response to the determined gesture corresponding to the image capture command. Specifically, each of the Accused Products uses its Processors or Systems-On-Chips and Camera(s) and associated hardware and software (*see* IIC, Section P.R. 3-1(b)) to capture an image to the digital camera in response to the determined gesture corresponding to the image capture command. The gestures corresponding to an image capture command that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
	https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
9. The method according to claim 8 wherein the determined gesture includes a hand motion.	The gesture determined by Defendants through the Accused Products include a hand motion. Specifically, each of the Accused Products uses its Processors or Systems-On-Chips and Camera(s) (*see* IIC, Section P.R. 3-1(b)) to determine a gesture including, but not limited to, a hand motion. The gestures that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
11. The method according to claim 8 wherein the electro-optical sensor includes first and second sensors in fixed relation relative to the digital camera.	The electro-optical sensors of the Accused Products are fixed in relation to the digital camera. Specifically, each of the Accused Products includes electro-optical sensors including, but not limited to, the electro-optical sensor(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software. Each of the Accused Products include first and second electro-optical sensors in fixed relation to a digital camera. *See* IIC, Section P.R. 3-1(b).
12. The method according to claim 8 wherein the electro-optical sensor defines a resolution less than a resolution defined by the digital camera.	The electro-optical sensors of the Accused Products define a resolution less than a resolution defined by the digital camera. *See* IIC, Section P.R. 3-1(b).
13[Pre] An image capture device comprising:	The preamble is not limiting. To the extent it is found to be limiting, each of the Accused Products is an image capture device. *See* IIC, Section P.R. 3-1(b).
13[a] a device housing including a forward facing portion, the forwarding facing portion encompassing a digital camera adapted to capture an image and having a field of view and encompassing a sensor adapted to detect a gesture in the digital camera field of view; and	Each of the Accused Products includes a device housing including a forward facing portion, the forwarding facing portion encompassing a digital camera adapted to capture an image and having a field of view and encompassing a sensor adapted to detect a gesture in the digital camera field of view. Specifically, each of the Accused Products includes cameras including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software. The Camera(s) in each of the Accused Products encompassing a digital camera adapted to

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
	capture an image and having a field of view and encompassing a sensor adapted to detect a gesture in the digital camera field of view.
13[b] a processing unit operatively coupled to the sensor and to the digital camera, wherein the processing unit is adapted to:	Each of the Accused Products includes a processing unit operatively coupled to the sensor and to the digital camera. Specifically, each of the Accused Products includes a computer including, but not limited to, its Processors or Systems-On-Chips and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The Processors and Systems-On-Chips provided in each of the Accused Products are coupled to the sensor and to the digital camera.
13[c] detect a gesture has been performed in the electro-optical sensor field of view based on an output of the electro-optical sensor, and	The Accused Products detect a gesture has been performed in the electro-optical sensor field of view based on an output of the electro-optical sensor. Specifically, each of the Accused Products uses its Processors or Systems-On-Chips and Camera(s) and associated hardware and software (s*ee* IIC, Section P.R. 3-1(b)) to detect a gesture has been performed in the electro-optical sensor field of view based on an output of the electro-optical sensor. The gestures that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot.

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
	See, e.g.: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
13[d] correlate the gesture detected by the sensor with an image capture function and subsequently capture an image using the digital camera, wherein the detected gesture is identified by the processing unit apart from a plurality of gestures.	The Accused Products correlate the gesture detected by the sensor with an image capture function and subsequently capture an image using the digital camera, wherein the detected gesture is identified by the processing unit apart from a plurality of gestures. Specifically, each of the Accused Products uses its Processors or Systems-On-Chips and Camera(s) (*see* IIC, Section P.R. 3-1(b)) to correlate the gesture detected by the sensor with an image capture function and subsequently capture an image using the digital camera, wherein the detected gesture is identified by the processing unit apart from a plurality of gestures. The gestures corresponding to an image capture command that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code),

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	Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
14. The image capture device of claim 13 wherein the detected gesture includes a hand motion.	The Accused Products detect gestures including a hand motion. Specifically, each of the Accused Products uses its Processors or Systems-On-Chips and Camera(s) (*see* IIC, Section P.R. 3-1(b)) to detect a gesture including, but not limited to, a hand motion. The gestures that can be determined by the Accused Products include, but are not limited to: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*:

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
	https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
16. The image capture device of claim 13 further including a forward facing light source.	Each of the Accused Products includes a forward facing light source. Specifically, each of the Accused Products includes a forward facing light source including, but not limited to, a Display. *See* IIC, Section P.R. 3-1(b). As specified in IIC, Section P.R. 3-1(b), specified Accused Products also include other forward facing Light Sources. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
17. The image capture device of claim 13 wherein the sensor defines a resolution less than a resolution defined by the digital camera.	The sensors of the Accused Products define a resolution less than a resolution defined by the digital camera. *See* IIC, Section P.R. 3-1(b).

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U.S. Patent No. 8,878,949 Claim Elements	Evidence of Use
18. The image capture device of claim 13 wherein the sensor is fixed in relation to the digital camera.	The sensors of the Accused Products are fixed in relation to the digital camera. Specifically, each of the Accused Products includes electro-optical sensors including, but not limited to, the electro-optical sensor(s) specified in IIC, Section P.R. 3-1(b) and associated hardware and software. Each of the Accused Products include a digital camera fixed in relation to the electro-optical sensor(s). *See* IIC, Section P.R. 3-1(b).

GTP v. Samsung: Claim Chart for U.S. Patent No. 8,553,079

U.S. Patent No. 8,553,079 Claim Elements	Evidence of Use
1[preamble]: A computer implemented method comprising:	The preamble is not limiting. To the extent it is found to be limiting, each of the Accused Products provides a computer implemented method including, but not limited to, through the use of its Processors or Systems-On-Chips. *See* Initial Infringement Contentions ("IIC"), Section P.R. 3-1(b).
[a]: providing a light source adapted to direct illumination through a work volume above the light source;	Through the Accused Products, Defendants provide a light source adapted to direct illumination through a work volume above the light source. Specifically, each of the Accused Products includes a light source including, but not limited to, a Display that directs illumination through a work volume above the Display. *See* IIC, Section P.R. 3-1(b). As specified in IIC, Section P.R. 3-1(b), specified Accused Products also include other Light Sources, and those Light Sources are also adapted to direct illumination through a work volume above the Light Sources. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
[b]: providing a camera oriented to observe a gesture performed in the work volume, the camera being fixed relative to the light source; and	Through the Accused Products, Defendants provide a camera oriented to observe a gesture performed in the work volume, the camera being fixed relative to the light source. Specifically, each of the Accused Products includes a camera including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b). The Camera(s) provided in each of the Accused Products is oriented to observe a gesture performed in the work volume and is fixed relative to the Light Source and/or Display at least because the Camera, the Light Source, and Display are all fixed to the device.

U.S. Patent No. 8,553,079 Claim Elements	Evidence of Use
	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. See, e.g., P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
[c]: determining, using the camera, the gesture performed in the work volume and illuminated by the light source.	Defendants determine, using the camera, the gesture performed in the work volume and illuminated by the light source by providing software and other source code functionality that when executed can only use the functionality provided by Defendants in association with the camera and light source.

Specifically, each of the Accused Products uses its Camera(s) to determine a gesture including, but not limited to, a gesture performed in the work volume and illuminated by the Light Source. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

The gestures performed in the work volume and illuminated by the light source that can be determined by the Accused Products include those associated with, but not limited to, the following features: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot.

See, e.g.:

https://www.samsung.com/us/support/answer/ANS00062630/ |

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	https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/
2. The method according to claim 1 wherein the light source includes a light emitting diode.	The Light Source(s) in each of the Accused Products includes, but is not limited to, a light emitting diode. *See* IIC, Section P.R. 3-1(b).
3. The method according to claim 1 wherein the light source includes a plurality of light emitting diodes.	The Light Source(s) in each of the Accused Products includes, but is not limited to, a plurality of light emitting diodes. *See* IIC, Section P.R. 3-1(b).
4. The method according to claim 1 wherein detecting a gesture includes analyzing sequential images of the camera.	Defendants detect a gesture by analyzing sequential images of the camera by providing, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The gestures detected including analyzing sequential images of the camera are associated with but are not limited to the following features of the Accused Products: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/

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	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
5. The method according to claim 1 wherein the detected gesture includes at least one of a pinch gesture, a pointing gesture, and a grip gesture.	Defendants detect gestures including, but not limited to, at least a pointing gesture by providing, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The gestures detected including at least a pointing gesture are associated with but are not limited to the following features of the Accused Products: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

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6. The method according to claim 1 further including determining the pointing direction of a finger in the work volume.	Defendants determine the pointing direction of a finger in the work volume by providing, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The gestures detected including the pointing direction of a finger in the work volume are associated with but are not limited to the following features of the Accused Products: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
8. The method according to claim 1 further including determining the three-dimensional position of a point on a user.	Defendants determine the three-dimensional position of a point on a user by providing, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The three-dimensional position of a point on a user is determined is determine during execution of, but not limited to, the following features: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face

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	Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
9. The method according to claim 1 wherein the camera and the light source are positioned in fixed relation relative to a keypad.	Each of the Accused Products includes the camera and the light source positioned in fixed relation relative to a keypad. As one non-limiting example, in each of the Accused Products during the time the keyboard is displayed on the screen of the Accused Products, the Camera(s) and Light Source(s) are positioned in fixed relation relative to the keypad. *See* IIC, Section P.R. 3-1(b). *See, e.g.*: https://www.att.com/device-support/article/wireless/KM1273285/Samsung/SamsungG965U This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.

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11[preamble]: A computer apparatus comprising:	The preamble is not limiting. To the extent it is found to be limiting, each of the Accused Products includes a computer apparatus including, but not limited to, its Processors or Systems-On-Chips. *See* Initial Infringement Contentions ("IIC"), Section P.R. 3-1(b).
[a]: a light source adapted to illuminate a human body part within a work volume generally above the light source;	Each of the Accused Products includes a light source adapted to illuminate a human body part within a work volume generally above the light source. Specifically, each of the Accused Products includes a light source including, but not limited to, a Display adapted to illuminate a human body part within a work volume generally above the Display. See IIC, Section P.R. 3-1(b). As specified in IIC, Section P.R. 3-1(b), specified Accused Products also include other Light Sources, and those Light Sources are also adapted to illuminate a human body part within a work volume generally above those Light Sources. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
[b]: a camera in fixed relation relative to the light source and oriented to observe a gesture performed by the human body part in the work volume; and	Each of the Accused Products includes a camera in fixed relation relative to the light source and oriented to observe a gesture performed by the human body part in the work volume. Specifically, each of the Accused Products includes a camera including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b). The Camera(s) provided in each of the Accused Products is in fixed relation relative to the Light Source and/or Display and oriented to observe a gesture performed by the human body part in the work volume at least because the Camera, Light Source, and Display are all fixed to the device. The gestures performed by the human body part include those associated with, but not limited to, the following features: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay,

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	Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
[c]: a processor adapted to determine the gesture performed in the work volume and illuminated by the light source based on the camera output.	Each of the Accused Products includes a processor adapted to determine the gesture performed in the work volume and illuminated by the light source based on the camera output. Specifically, each of the Accused Products includes a processor including, but not limited to, the Processors or Systems-On-Chips specified in IIC, Section P.R. 3-1(b). The Processors or Systems-On-Chips in each Accused Product determine the gesture performed in the work volume and illuminated by the Light Source(s) and/or Display based on the output of the Camera(s). The gestures performed in the work volume and illuminated by the light source and determined based on the camera output include those associated with, but not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot. *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/

U.S. Patent No. 8,553,079 Claim Elements	Evidence of Use
	https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
14. The computer apparatus of claim 11 wherein the light source includes a light emitting diode.	The Light Source(s) in each of the Accused Products includes, but is not limited to, a light emitting diode. *See* IIC, Section P.R. 3-1(b).
15. The computer apparatus of claim 11 wherein the light source includes a plurality of light emitting diodes.	The Light Source(s) in each of the Accused Products includes, but is not limited to, a plurality of light emitting diodes. *See* IIC, Section P.R. 3-1(b).
19. The computer apparatus of claim 11 wherein the determined gesture includes a pointing gesture.	Each of the Accused Products determines gestures including, but not limited to, at least a pointing gesture using, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The gestures detected including a pointing gesture are associated with but are not limited to the following features of the Accused Products: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*:

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	https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
21[preamble] A computer implemented method comprising:	The preamble is not limiting. To the extent it is found to be limiting, each of the Accused Products provides a computer implemented method including, but not limited to, through the use of its Processors or Systems-On-Chips. *See* Initial Infringement Contentions ("IIC"), Section P.R. 3-1(b).
[a] providing a camera oriented to observe a gesture performed in a work volume above the camera;	Through the Accused Products, Defendants provide a camera oriented to observe a gesture performed in a work volume above the camera. Specifically, each of the Accused Products includes a camera including, but not limited to, the Camera(s) specified in IIC, Section P.R. 3-1(b). The Camera(s) provided in each of the Accused Products oriented to observe a gesture performed in a work volume above the camera. The gestures performed in the work volume above the camera include those associated with, but not limited to: Gesture Detection, Smile Shutter, Iris Scan Unlock, Face ID Unlock, Intelligent Scan Unlock, Tracking Autofocus, Selfie Focus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Face Location, Active Shape Connection, Internet Transfer After Sense (E.G., QR Code), Bixby Vision, Control Exposure Based On Location, Live Masks Track/Apply, Live Stickers Track, AR Emoji, Beauty Mode, Portrait Mode, and Smile Shot.

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	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. See, e.g., P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
[b] providing a light source in fixed relation relative to the camera and adapted to direct illumination through the work volume; and	Through the Accused Products, Defendants provide a light source in fixed relation relative to the camera and adapted to direct illumination through the work volume Specifically, each of the Accused Products includes a light source including, but not limited to, a Display that directs illumination through the work volume. *See* IIC, Section P.R. 3-1(b). As specified in IIC, Section P.R. 3-1(b), specified Accused Products also include other Light Sources, and those Light Sources are also adapted to direct illumination through the work volume. The Light Source(s) and Display provided in each of the Accused Products is fixed relative to the Camera(s) at least because the Camera(s), Light Source(s), and Display are all fixed to the device. This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
[c] detecting, using the camera, a gesture performed by at least one of a user's fingers and a user's hand in the work volume.	Defendants detect, using the camera, a gesture performed by at least one of a user's fingers and a user's hand in the work volume by providing software and other source code functionality that when executed can only use the functionality provided by Defendants in association with the camera and light source. Specifically, each of the Accused Products uses its Camera(s) to detect a gesture including, but not limited to, by at least one of a user's fingers and a user's hand in the work volume. This limitation may also be informed by source code, and GTP reserves the right to assert

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	additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases. The gestures performed by at least one of a user's fingers and a user's hand in the work volume that can be determined by the Accused Products include those associated with, but not limited to, the following features: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.,* P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
22. The method according to claim 21 wherein the light source includes a light emitting diode.	The Light Source(s) in each of the Accused Products includes, but is not limited to, a light emitting diode. *See* IIC, Section P.R. 3-1(b).

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23. The method according to claim 21 wherein the light source includes a plurality of light emitting diodes.	The Light Source(s) in each of the Accused Products includes, but is not limited to, a plurality of light emitting diodes. *See* IIC, Section P.R. 3-1(b).
24. The method according to claim 21 wherein detecting a gesture includes analyzing sequential images of the camera.	Defendants detect a gesture by analyzing sequential images of the camera by providing, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The gestures detected including analyzing sequential images of the camera are associated with but are not limited to the following features of the Accused Products: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
25. The method according to claim 21 wherein the detected gesture includes at least one of a pinch	Defendants detect gestures including, but not limited to, at least a pointing gesture by providing, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b).

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gesture, a pointing gesture, and a grip gesture.	The gestures detected including a pointing gesture are associated with but are not limited to the following features of the Accused Products: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*: https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
26. The method according to claim 21 further including determining the pointing direction of one of the user's fingers using the first and second cameras.	Defendants determine the pointing direction of a finger in the work volume by providing, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b). The gestures detected including the pointing direction of a finger in the work volume are associated with but are not limited to the following features of the Accused Products: Gesture Detection, Tracking Autofocus, Smart OIS, Smart Stay, Smart Pause, Smart Scroll, Blur Background, Adjust Blur, Active Shape Connection, Bixby Vision, Control Exposure Based On Location, and AR Emoji. *See, e.g.*:

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	https://www.samsung.com/ie/support/mobile-devices/how-can-i-control-galaxy-s5-using-physical-gestures-instead-of-just-touch-or-voice/ https://www.samsung.com/sg/support/mobile-devices/how-to-use-palm-gesture-to-take-selfie-on-samsung-mobile-device/
28. The method according to claim 21 further including determining the three-dimensional position of a point on at least one of the user's hand and the user's fingers.	Defendants determine the three-dimensional position of a point on a user by providing, e.g., the Camera(s), Processors or Systems-On-Chips, and associated hardware and software. *See* IIC, Section P.R. 3-1(b). *See, e.g.*: https://www.samsung.com/us/support/answer/ANS00062630/ This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.
30. The method according to claim 21 wherein the camera and the light source are positioned in fixed relation relative to a keypad.	Each of the Accused Products includes the camera and the light source positioned in fixed relation relative to a keypad. As one non-limiting example, in each of the Accused Products during the time the keyboard is displayed on the screen of the Accused Products, the Camera(s) and Light Source(s) are positioned in fixed relation relative to the keypad. *See* IIC, Section P.R. 3-1(b). *See, e.g.*: https://www.att.com/device-support/article/wireless/KM1273285/Samsung/SamsungG965U

	This limitation may also be informed by source code, and GTP reserves the right to assert additional theories under the doctrine of equivalents in response to claim construction positions that Defendants may adopt or the production of source code for software-based limitations. *See, e.g.*, P.R. 3-6(a)(1); Section 3(a) of Chief Judge Gilstrap's Sample Discovery Order for Patent Cases.